

African Violet

Growing

Handbook



Compiled and published by the members of the
First Austin African Violet Society, Austin, Texas

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African Violet *Growing Handbook*

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FIRST AUSTIN AFRICAN VIOLET SOCIETY

Austin, Texas

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INTRODUCTION

WHAT'S AN AFRICAN VIOLET?

The AFRICAN VIOLET is rapidly becoming the most popular houseplant grown in America today. It was first discovered as a little plant with an insignificant tiny blue flower, growing in the crevices of rocks near rivers in east Africa in 1892 by a plantation owner named Walter von Saint Paul. He sent specimens of them to Germany where they were subsequently named, after him, Saintpaulia Ionatha, in Latin meaning "with violet-like flowers". It was not until 1920 that the African Violet found its way to America, and not until several years after that did they succeed in getting the attention of houseplant fanciers. While a handful of different varieties were beginning to appear on the market from hybridizers, all were still basically the single blue blossom, until 1942 when a pink violet was successfully produced. In 1942 a white violet was produced, followed in 1947 by a nearly red, and a two-tone. Many interesting variations in foliage types began to appear including the popular "girl foliage" a term which represents many shapes of leaves, all characterized to some degree by a spot of white which appears on the leaf base where it joins the leaf stem, or petiole. Modern varieties bloom year-round, further enhancing their desirability as a house plant.

Today there are literally thousands of African Violet varieties on the market with many new varieties being introduced each year. From the single blue blossom came countless shapes and variations of blossom types including, the double, star-shaped, ruffled, and combinations of the types. Not only did variations in hues appear on a blossom, but so did two entirely different colors, including the many dark colored blooms with white edges on each petal. In recent years many varieties have been introduced with the foliage variegated in shades of green, white, yellow, and pink. Each violet variety is given a name by its hybridizer and a good many of the names are registered with the African Violet Society of America, Inc. An effort is being made to avoid duplication of names, and to standardize descriptions of varieties.

Different Types of Blossoms



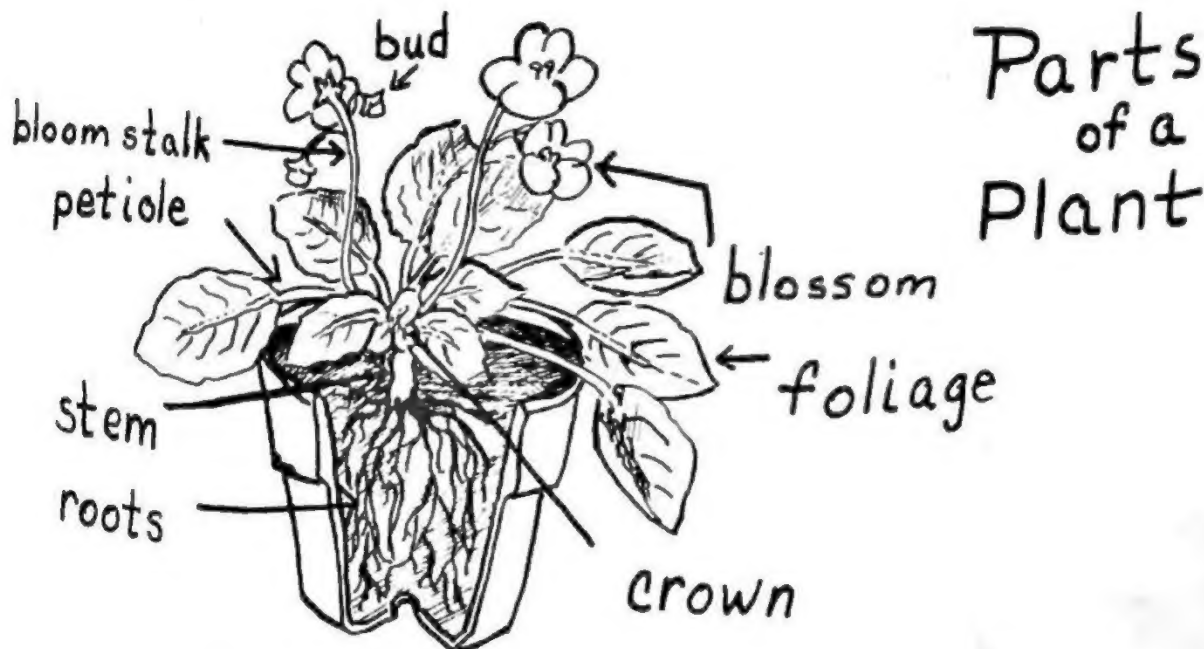
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In November of 1946 the African Violet Society of America Inc. was organized. Many local societies, such as our First Austin African Violet Society were formed by groups of people interested in growing the African Violet and in learning more about its culture. Hundreds of these societies eventually became "affiliates" of the national African Violet Society of America Inc. and joined in the coordinated effort to improve on the development, culture and enjoyment of the African Violet. Through the A.V.S.A. Inc., many research projects on plant culture and diseases have been implemented. The A.V.S.A. Inc. publishes a beautiful, informative magazine containing articles on every phase of violet growing. It can be subscribed to by writing the African Violet Society of America, Inc. P. O. Box 1326, Knoxville, Tennessee, 37901.

This handbook has been compiled and published by the members of the First Austin African Violet Society in answer to the many questions posed by the countless novice growers in Austin, and to offer additional growing hints and information which will hopefully in some way encourage and enhance the simple art of African Violet growing by anyone even slightly interested in our most colorful fascinating houseplant to date.

CULTURE

The African Violet can be grown and enjoyed to its fullest with very little or no equipment. The so-called "green-thumb" that certain persons



are purported to have in growing the African Violet is nothing so magical, but merely a sensitivity they have developed to the basic needs of their plants. This "green-thumb" can thus be possessed by anyone willing to take the time and trouble to observe and correlate the reactions of their plants to various stimuli such as light, water, food, etc. When a proper balance is made between these necessary growing elements, anyone's plants will bloom and flourish.

There are two basic growth patterns which can be accomplished in violet growing. Violets tend to throw suckers, or multiple crowns. They can be grown as multi-crown plants, leaving on all suckers. Or they can be grown as single crown plants, removing all crowns as they appear except for the center main crown. Since all violet shows require the plants be single crown plants, this is the method which we will follow here. Multi-crown plants tend to get too thick and crowd out the development of many buds. A single crown plant can be groomed and shaped into a flat rose⁺ shape with ample room and plant energy reserve for many blooms.

If you were to ask ten different growers how to grow violets, you would get ten different answers. And they would probably all be right, because each grower has worked out the best way for he himself to grow them. Their methods are all based on a few universal requirements, however we will present these here and you can take it from there.

There are seven basic growing requirements, which when met will afford your plants the best environment in which to grow. They are proper light, water, humidity, soil, fertilizer, temperature, and pest and disease control. Let us discuss each growing requirement separately, although one is quite necessary to the other for optimum plant growth and bloom.

LIGHT

The most important requirement is good light. While some varieties tend to prefer more light than others and some like natural light more than artificial light, all violets need enough of some type to stimulate growth and bloom development. Too much sunlight, or artificial light will affect the foliage a number of ways. The leaves may bleach or turn yellow; or the leaves may become scorched, or brittle and hard, and tight in the center of the plant. The leaves may turn down around the edge of the pot. Experimenting with the light exposure will soon tell you if your light is too strong. If the violets are being grown beside windows, particularly a western or southern exposure, the light may be too strong at certain times of the day. This may be corrected by the use of a thin curtain during the strongest hours. An east or north window is generally not too strong at any time of day. But do not rule out a western or southern exposure as many plants are grown in them beautifully.

Inadequate light is the most common cause of a plant's failure to bloom. The plant will continue to grow and produce leaves, and it may

produce a few blooms, but it will not exhibit its full potential under these conditions. A plant will usually demonstrate its need for more light by producing long weak leaf stems which reach up, and toward the source of light. Windows which are covered by porches or shielded by large trees generally will not receive enough light for good violet growing.

Growing violets under artificial lights is becoming more popular by the day. The obvious advantage of growing under lights is that the grower can establish and control the exact amount of light he wishes his plants to receive. If the plants are getting too much light he can decrease their exposure, either by hours, or the plant's distance from the lights. Conversely, if the plants are not getting sufficient light to perform at their best, he can increase their exposure.

There is one important rule which must be observed concerning a plant's exposure to light: An African Violet **MUST** have eight hours of total darkness in which to use its food. An African Violet will take up its food (fertilizers and soil nutrients) during the day, but it cannot assimilate and distribute the food to its tissues until it is in darkness. Therefore, if a grower were to keep lights on the plants all night long, the plants would literally starve to death. Plants grown under lights, particularly for long hours, will usually need more fertilizer and water than plants grown by a window, as the growth stimulus creates a greater demand for food.

There are two popular types of lights under which to grow plants. They are both fluorescent tube lights. One is the ordinary cool white type of fluorescent and the other is the Gro-Lux, which puts out more of the red rays. The Gro-Lux was designed primarily as a plant-growing aid, with emphasis on the special rays which stimulate plant growth and bloom production. However, the cool white tubes grow equally as well for many people; and in many instances where growers use light fixtures with two bulbs in them, they will use one cool white and one Gro-Lux in a fixture. The Gro-Lux does greatly enhance the colors of many blooms, particularly the reds and pinks, making some of them appear to practically glow. The regular household incandescent light bulbs are generally not satisfactory as plant lights.

There is some leeway in the distance a plant should be from light tubes, although it is generally agreed that a distance of eight to fourteen inches between the bottom of the light tube and the top of the plant is about average. Small plants should be about eight or nine inches from the lights while some larger plants might need to be a little farther. Here again the distance is something your plants will have to tell you. If they are reaching up you may want to lower the fixture a little at a time until the plants are growing relatively flat. If the fixture is not moveable, the plants can be raised by setting them on overturned pots or other objects.

As mentioned earlier, some varieties will naturally like more light than others, so it may be that you will have to shift them about, raising some and lowering others until you determine the light preferences of each plant. Also, with fluorescent tubes, the light intensity greatly decreases after about six inches to either side of the bulbs, so that plants requiring more light can be placed directly under the bulbs, and those requiring less can be placed out to the sides. Light intensity is also greater in the center area of the tube and less toward the ends. A fluorescent tube loses much of its power after a few months and plants may begin to reach up to tubes which are getting old. Caution should be taken in replacing old bulbs with new, particularly if both tubes in a fixture are replaced at the same time. The plants may react to the sudden increased intensity of the lights, in which case the burning hours can be temporarily shortened while the bulbs are still fairly new. It is usually sufficient to burn lights about ten hours a day, although they may be increased to twelve or fourteen hours a day. In the summer months the hours may be reduced to ten or twelve as summer heat tends to slow down plant growth somewhat.

There is a third type of fluorescent bulb which has been developed for plant growth and that is the Gro-Lux Wide Spectrum. They are very much like the standard Gro-Lux except that they are purported to have a wider range of stimulating rays. They are used in the same manner as other bulbs.

A small luxury enjoyed by many violet growers is an automatic timer which can be pre-set to turn on and turn off plant lights at specified times. This is a great advantage to those who travel and are not at home to turn lights on or off for days at a time. It is also a boon to those of us who often forget to turn lights off until we wake up in the middle of the night and see a glow across the yard from our plant room! Timers are available at most appliance stores and can usually be had for under \$10.

SOIL

Probably next in importance to light is the matter of a proper soil in which to grow our violets. In choosing your soil do not venture out and use our natural soil as violets are so very susceptible to infection by root knot nematodes. Care must always be exercised even though the commercial bag may be labeled "no need to sterilize" as your plants can suffer untold damage from soil mealybugs and many other soilborne insects.

First let us list all the basic qualities a soil for African Violets should have before we choose one. It should be loose and porous to permit a good circulation of air and water. It must be rich, but have good drainage, be slightly acid, and it must be free of soil insects and diseases. Assuming that you have selected a package mix with all these qualities (and there are many good brands on the market), you may elect to use it as it is for potting your plants. If you have any doubts as to its sterility, that is whether it may contain some sort of insect or disease, it is always

wise to add a soil nemacide to kill any existing nematodes. These are usually some form of chlordane and your nurseryman can advise you on this. VC 13 is the nemacide most commonly used by violet growers. It is most important to kill nematodes in the soil BEFORE potting, because once they infect the roots of the plant, they cannot be killed, and the plant must be destroyed. Most violet growers as a precaution always sterilize their soil, either by baking it for a few hours in a moderate oven or by adding the soil nemacide.

Depending on your own particular method, and how much or how little you water, you may decide that your packaged soil is just not exactly right for you. In that case, decide what is lacking in the required qualities and experiment until you remedy it. If your soil has a tendency to pack and is too heavy, you may want to add some perlite. This is a white lightweight volcanic product which is very porous and bulky enough to resist packing. It is available at most nurseries. By contrast if your soil is too light and dries out too quickly, it may need more humus or an addition of vermiculite. This is a mica by-product and helps to retain moisture. Sphagnum peat moss, chopped up will also hold moisture well and is a good source of organic matter as well. If you feel that your soil may be lacking in trace elements (these are magnesium, calcium, boron, etc.) there are several good packaged forms of these supplements.

In addition, you may want to add a small amount of dolomite lime to help counteract acidity. As peat and humus break down they become very acid, and too acid a soil is the biggest problem we seem to have with soils. The term PH is used to describe the degree of a soil's acidity or alkalinity. Violets like a PH of 6.4 ideally. A simple inexpensive acidity test kit is available at many nurseries, and precludes trying to guess about your soil acidity. After a plant has been potted for a while, the soil usually will become more acid. If allowed to go too long, the soil will become "locked up", that is even though you may be fertilizing your plants, the soil's acidity will prevent the plant from receiving the food, and it will starve. A plant which begins to yellow is probably the victim of acidity. To counteract acidity in a potted violet, you may add $\frac{1}{4}$ to $\frac{1}{2}$ teaspoon of ordinary whiting (used in tile work, etc.) and work it into the top of the soil. However, it is probably better in the long run to just repot a plant every few months to be sure you are supplying all the nutrients the plant needs.

Charcoal crushed into small pieces is a very good addition to your soil as a sweetener and to help fight acid. Chicken charcoal, obtained at feed stores is an excellent size to use. Most violet growers always mix charcoal into their potting soil. The orange crust you see collected around the top of a pot and on top of the soil is an accumulation of salts, and is very acid and injurious to your plants.

If you prefer to mix your own soil, you may start with any good packaged peat or humus mix and add your own proportions of various components.

Soil recipes are endless. Here is an example, a recipe that has been and still is very popular for many years all over the country. It is known as Formula #5:

- 3 coffee cans of Baccto Potting Soil
- 3 coffee cans Black Magic Potting Soil (contains vermiculite and perlite)
- $\frac{1}{2}$ coffee can chicken charcoal
- 1 cup eggshells, finely ground (help counteract acid, add calcium)
- 1 tablespoon of 20% phosphate

Mix these all together in a plastic dishpan or whatever container you have suitable, add your nemacide, let it set a few days and it is ready to use. Be sure your soil is damp when potting.

POTS AND POTTING

African Violets prefer to be under potted a bit rather than over potted. If a violet is in too large a pot it will grow, but not as well and it will definitely not bloom as well. Also a great danger in over potting is the good chance that the plant will receive too much water and will develop root rot and die. Of course, if a plant is allowed to remain in too-small pot for too long, it will begin to suffer and growth will slow down. The best rule for pot size is this: The pot should be no wider than $\frac{1}{3}$ the diameter of the plant. Therefore, if you have a plant that measures nine inches across, it should be in a three inch pot. Very seldom will you see a violet in anything larger than a five inch pot. Ideally pots should be of a shallow type, as violets are relatively shallow growers. Either plastic or clay pots are acceptable for violets, although clay pots seem to accumulate and hold the salts and are harder to clean. If you use plastic pots you will not need to water as much as you would in clay pots. In any event, whatever pot you choose must be clean, preferably with boiling water or Clorox water, to kill any diseases or insects which may be adhering to the pot surface.

Choose the correct pot for the plant you are potting, and if you like, place a thin layer of perlite in the bottom of the pot for added aeration. Place a small amount of damp soil in the pot, carefully adjust the roots of the plant to spread out in the pot, add soil until all roots are covered. Be careful that soil does not get too high on the plant so that there might be danger of getting soil in the crown of the plant. Damp soil in the crown will quickly rot the center of the plant. Gently press the soil down and water very lightly. Do not water freshly potted plants too heavily until they have a chance to recover from the shock or repotting. When it is time, in a few months, to repot the plant, remove the plant from the old pot carefully and with your fingers, gently work the old soil loose from the roots. Remove any old leaves from the outside rows and pot as before.

The Aquamatic Planters are very popular with growers, as they contain a reservoir which can be filled with fertilizer water ($\frac{1}{8}$ strength) and

they will half-water for two or three weeks as a trial. They should be planted first with a thin layer of potting soil and then add the soil using a bit more perlite in the soil mix for these plants.

WATER

There are several methods of watering African Violets, and most growers generally try all of them and then settle on the one or two which suit them the best. A few remarks about the type of water to use might be appropriate here. Most growers just use tap water, NEVER cold, just tepid or slightly warm, and certainly no colder than room temperature. This is because cold water when applied to the roots will shock the plant and cause a disfiguring light spotting on the leaves, even though it may not have even touched the leaves. Of course water too hot may bring injury to the roots. This matter of water temperature is no critical thing and a range of cool to warm is perfectly acceptable.

Never use water which has been softened, as there are chemicals in it which are definitely injurious to plants and plants will not long tolerate softened water. Rain water is fine if it is available in sufficient quantity, and if it has not collected harmful residues from the roof or other objects it has passed over. Sometimes tap water in an area will have an excessive amount of some mineral in it, which is perfectly safe for drinking purposes, but will eventually cause a build up of this particular mineral in the soil of a potted plant and overbalance the elements of the soil, causing injury to the plant.

The question most often asked by a new grower is: "HOW OFTEN DO I WATER.....ONCE A WEEK.....EVERY MONDAY?" Actually it would be very simple to say "water every Wednesday, or every third or fourth day", but unfortunately this will not work with violets. The amount of water required by each plant will depend on its size, the condition of its root system, the amount of light it receives, and the general environment in which it is grown. Some plants may need water everyday, while others will need it only once a week or less. So the simplest, most foolproof rule of thumb for watering African Violets is this: Water a plant when the top of the soil in the pot feels dry to the touch of your finger.

African Violets do not like to be soggy. There must be a certain amount of oxygen in the soil to keep the roots from rotting. If a soil is too wet for too long, the roots will rot and the plant will die. To the other extreme, violets do not like to be extremely dry. If allowed to stand dry until they wilt, a number of their fine hair-like feeder roots will die back and weaken the plant. IF A PLANT HAS BEEN ALLOWED TO WILT DOWN do not soak it with water, but instead give it a little bit of water at a time until the plant comes back up to its normal crispness again. A plant which has suffered a loss of roots from wilt, will not be able to handle a lot of water until it has replaced the lost roots.

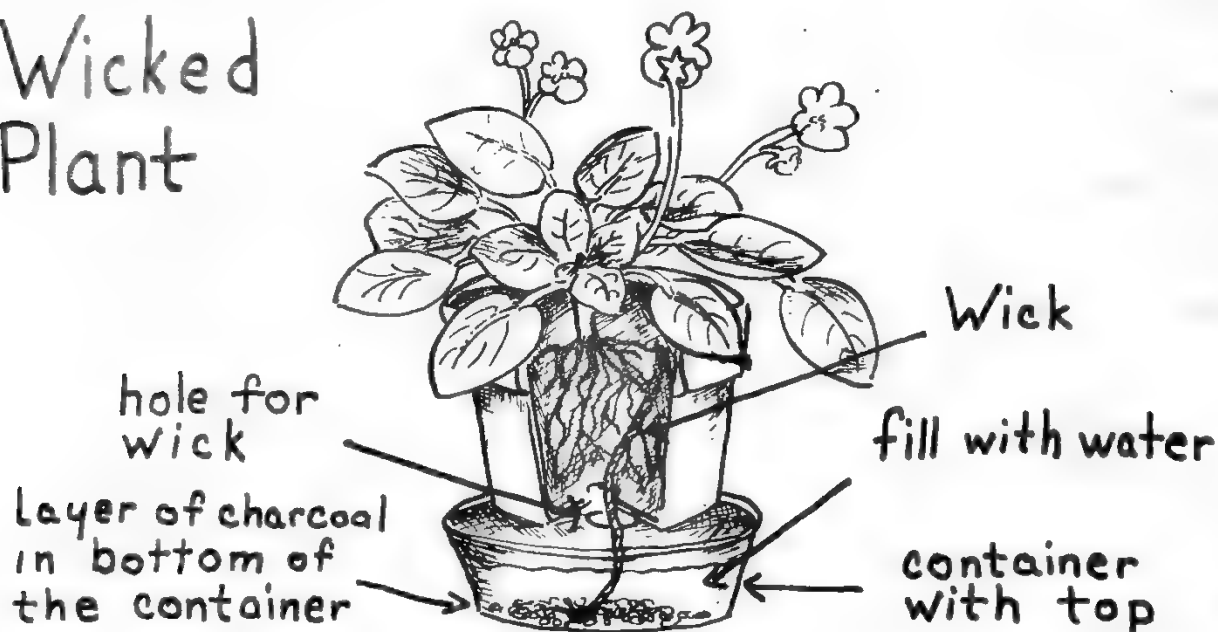
The most common watering method is "top-watering". Pour the water into

the top of the pot being careful to pour it between the leaves. Be very careful not to get water into the crown, for if allowed to stand it will rot the center leaves out of the plant. Soak the soil well enough to be sure the plant gets a good watering and let the excess run through the bottom of the pot. Top watering has the advantage of washing out any harmful salts that tend to build up in soil and damage a plant.

Bottom watering is done by letting a plant set in a saucer of water for 15 or 20 minutes to allow the plant to soak up water from the bottom. It is important that the water left after the plant has taken what it can hold be poured off and not allowed to waterlog the plant. If you use bottom watering as your regular method, you should about every third or fourth time, water from the top to wash out some of the accumulated salts and minerals.

Wicking is another method of watering which is popular among many growers. Its advantage is that the plant will receive water at a more constant rate and not be subjected to periods of dryness or overwetness. It is advisable though when wicking to occasionally wash out salts from the top by allowing clear water to run through the soil and out the bottom of the pot for a few minutes.

Wicked Plant



To wick a plant, get some nylon twine, the kind that hardware stores carry for fish net and seine purposes is good. Cotton is not suitable as it will rot almost immediately in wet soil. A size of twine about like kite string or a little larger is good for most plants. Cut a length about 8 inches long. With a crochet hook or a piece of wire with the end bent over to make a hook, reach down through the soil from the top of the pot down and out the bottom of the pot through one of the holes in the pot. Catch the twine and draw it up into the soil until the top end of the twine comes

to the top of the soil. Remove the hook and press the soil back down. The rest of the twine should be hanging from the hole in the bottom of the pot. Now fill a reservoir of some sort (a cottage cheese container, plastic freezer carton, etc.) with water mixed with fertilizer if desired; cut a hole about the size of a nickel in the lid of the container, replace lid on container, and run the wick twine down through the hole into the water, allowing the plant to set on the container lid. The wick may have to be dampened by hand initially. Depending on the type of container used, the container may hold enough water for a week or two or more and will not need to be refilled too often.

Plants may also be sprayed on the leaves with a fine mist of water occasionally. This will serve to give the plants a little extra moisture, and clean the leaves from dust and dirt. Misting can be done at any time of day although night is very convenient. Water on the leaves, when the plants are under lights, or in strong sunlight will cause the leaves to have spots burned into them by the magnification of light rays through the drops of water. There are many inexpensive mist sprayers on the market, or you can use a CLEAN bottle from which you have emptied spray cleaner or window spray, etc. It is beneficial to plants if once a week or once every two weeks a little fertilizer is added to the mist water. It will help to give the leaves a rich glossy green color.

HUMIDITY

Humidity refers to the amount of moisture present in the air, in this case, surrounding our plants. Humidity varies not only with the general climate in which we live (i.e., arid, coastal, etc.) but almost daily with the seasons and current weather conditions. During the winter, central heating systems tend to dry out the air in homes a good bit. African Violets like a medium humidity of 40% to 50% ideally, but of course do grow in a greater or lesser humidity depending on the degree of extremity. A sufficient humidity around violets aids in the formation of more and larger blooms, and contributes greatly to the general health and beauty of the plant.

Humidity can be provided a number of ways. Probably most convenient is the method of setting plants on a tray in which at least an inch of pebbles, gravel, perlite or vermiculite has been spread. Keep water in the tray up to the top or near top of the pebbles or whatever, but NOT above the pebble level so that the plants are standing in the water. The plants should stand ABOVE the water. As the water evaporates, moisture rises up to the plants and provides the needed humidity. Water can be added to the trays every several days or however often it is needed to replace what has evaporated.

A humidifier in the room is another method of providing humidity, but they are generally more expensive than just a few plants might warrant.

a vaporizer can be used in the plant room as a humidifier. This would be too troublesome to have to refill constantly, but it is worth considering on very dry days when no other method is available. Misting is of course a way of providing extra moisture, but since it does not last too long, it is not a constant source of humidity.

TEMPERATURE

African Violets can tolerate a wide variety of temperatures, but how well they tolerate an extreme temperature depends a great deal on the humidity surrounding them. The ideal temperature range for the best growth and bloom is between 60° and 75° to 80°. They can stand a temperature of around 50° for a few days without any real problems, provided the humidity is not too high. If the humidity is too high then very often a white powdery mildew will appear on the blooms, stems and sometimes the leaves. If allowed to remain and increase to any extent the mildew will damage or kill the plants. It can be countered with a light dusting of sulphur.

In the summer violets can tolerate temperatures up to 90° or more if the humidity is high enough. The plants will not grow well, however, and they may become weak and spindly, the leaves will not attain their proper size or condition, and the blooms will decrease in size and number.

If the temperature is too cold for any length of time, the leaves will be small and curled and the blooms will fail to develop. If the plants experience a sudden change in temperature, they will suffer some extent of shock and a setback in general health. Violets are of course, a house plant and cannot be grown outside with much success, and definitely cannot take a freeze.

FERTILIZERS

The subject of fertilizers is a constant source of opinions and disagreements. Every grower has his pet methods and brands of fertilizers; the fertilizer that makes one grower's plants flourish may give nothing but trouble to another grower. But it is agreed that violets do need an additional feeding source other than what is already in the original soil mix, so with that in mind we will discuss here some of the most popular forms of fertilizer and suggest that each grower experiment with his plants until he finds the type of food to which his own plants respond the best.

There are two basic types of fertilizers, chemical and organic. Chemical fertilizers are those which are compounded from the major nutrients which plants need in a fertilizer: Nitrogen, phosphate, and potash. Organic fertilizers are those which are derived from some sort of natural origin, such as fish emulsion. Both types have their good and bad points. It is wise to alternate from one fertilizer to another so that the danger of an imbalance from one constant type is lessened.

When you see a sequence of three numbers on the label of a fertilizer such as "7-6-10", this means that the fertilizer contains 7% nitrogen, 6% phosphate, and 10% potash. The rest is usually in inert carrier. The numbers will always be in this sequence: Nitrogen-Phosphate-Potash. The distribution of nutrients is a most important factor in deciding which fertilizer you want to give your plants.

Nitrogen is the element which all plants must have, and which "vanishes out" and is used up most quickly in African Violets. It is responsible for the dark lush growth of the leaves and general health and strength of the plant. A lack of nitrogen will be evident in pale thin leaves and weak plants. Too much nitrogen, on the other hand will discourage good bloom and overbalance the plant's food supply.

Phosphate is most responsible for good budding and blooming, and for a good root system. It deepens and enriches the color of blooms. Lack of phosphate will cause a poor bloom and yellowing of some leaves, and will also cause a stunting of the plant in general.

Potash is the "toner" in fertilizers. It assists in stabilizing the growth, helps the plant to resist diseases, and helps to condition the element balance so that the plant can properly receive the other nutrients. In addition it improves the flowering qualities of the plant.

With these factors in mind, let us consider some of the fertilizers on the market. Peters 20-20-20 and Hyponex 20-20-20 are both popular forms of equally balanced fertilizers and are a good mainstay type of fertilizer. Growers who rely on this type for most of their watering will cut their amount of fertilizer down to a fourth strength or an eighth strength and water more often. For example, if a fertilizer says on its label to mix one teaspoon into a quart of water and use it once a month, violet growers often mix $\frac{1}{4}$ teaspoon in a quart of water and water once a week with it. This seems to work out better with violets, as it provides a more constant form of food supply, as opposed to a feast-or-famine situation. Here we might make one point: It is never wise to exceed the recommended dosage of fertilizer, under the hopes that if a little helps a little, a lot will help a lot. An overdose of fertilizer will turn the leaf edges brown and kill many of the roots of the plant, literally burning them.

Another popular form of chemical fertilizer is Plant Marvel which is 12-31-14. As you will note, it is a little heavier on phosphate than those previously discussed. This type is a good general fertilizer also, but in addition, will help plants to bud and bloom more readily. Black Magic Blossom Booster, 4-10-10 while not as strong as Plant Marvel will also assist in the blooming. Hyponex African Violet Food, 7-6-19 is an excellent general fertilizer and has a higher source of potash in relation to its other ingredients. Fish Emulsions are usually lower in strength, such as 5-5-2, but are excellent sources of food for violets. The above

brands cited are some that are commonly used in this area, but there are many other good brands on the market. If you feel that your plants are lacking one of the three major elements, get one of the fertilizers that is heavier in that particular element and use it several times in succession.

It might be wise here to repeat the warning that when a soil becomes too acid in a pot, the fertilizers become unavailable. No matter how much you feed the plant it may not be able to assimilate it. (Refer to Soil Section).

FOLIAR FEEDING

This is a method of fertilizing violets, usually used in addition to the regular fertilizing in the soil. A fertilizer beneficial to foliage (with nitrogen) such as Rapid-Gro or 20-20-20 or fish emulsion is mixed in dilute form in a sprayer and sprayed on the plants directly. You must be careful not to do this and then subject the plants to light while they are still wet, as you will get burn spots on the foliage. Foliar feeding is a very beneficial way to give your plants that extra boost and to promote healthy leaves. Foliar feeding should not be overdone; usually once or twice a month is sufficient.

VARIEGATED FOLIAGE

While this subject may seem out of place at this point, it actually is one that is closely related to the choice of fertilizers. Variegated foliage is the foliage which is becoming very popular now, and makes a beautiful plant even when the plant is not in bloom. The colors most often occurring with the green on variegated foliage are white, yellow and pink, and various combinations of these. The variegation is not always too steady, and will accelerate or diminish with a number of factors. Summer heat is a factor which causes many types of variegated foliage to "go green" or lose its variegation. This is because heat causes a release of nitrogen, the element which is most responsible for the green rich color of leaves. Therefore it may also be concluded that a fertilizer heavier on the nitrogen than on the phosphate will also cause a plant to lose some or all of its variegation. Even fish emulsion, while not strong as a whole, tends to lean toward the nitrogen end, and will green up the variegation. So it is wise to feed variegated plants at least sometimes with a fertilizer high on the phosphates, such as Plant Marvel or Peters Variegated Special, 5-50-17.

As mentioned, summer heat often makes plants lose their variegation, and conversely cool weather encourages plants to variegate. Most growers place their variegated varieties on the bottom shelf nearest the floor, and thus in the coolest spot, and close to the lights. Plants which lose their variegation in the summer time will most of the time regain it in cool weather, although there may remain a row of leaves which are all

should ever be handled CAREFULLY. When a label carries a warning such as "Use only in a well ventilated area", it means just that. Just because you may not be able to smell it, doesn't mean that you are not inhaling its vapors or absorbing it through your skin. So read all labels thoroughly and then give the chemicals the benefit of the doubt and be extra cautious. Always wash your hands and utensils thoroughly after using; and avoid spraying around pets, fish bowls, kitchen area, and closed rooms. Most pest problems can be controlled fairly easily if the insects have not been allowed to develop and reproduce in great numbers. Since many of these pests have a reproduction cycle that requires only a few days, it is imperative that treatment be started as soon as symptoms are first noticed.

MITES

The mite is one of the most dreaded of violet enemies, because it can become firmly established throughout a violet collection before its first damage symptoms begin to show up on the plants. For this reason, when a plant is found to have mites, it must be assumed that all other plants with it have them also, and should all be treated. The mites (there are several types including the cyclamen mite which attack violets) are invisible to the naked eye though they can be spotted with a strong magnifying glass.

When a plant's center begins to look different, it would be wise to consider the possibility of mite problems. The mite lives in the crown or center of the plant, where it maintains itself by scratching the surfaces of the tender growth and sucking the plant juices. This causes a deformity to develop in the center leaves, petioles, and bud stems. The center of the plant will cease to grow and will begin to appear very hairy and flat or gnarled, and will turn a gray or pinkish gray or yellowish. By the time these symptoms have developed, you have had mites for weeks. It is best to destroy the badly affected plants because they carry great numbers of mites, and the plant, if it recovers, will develop many small crowns in the center, rather than its one large one. To treat for mites, obtain some Kelthane, mix $\frac{1}{4}$ teaspoon in one quart of water and spray on plants, paying particular attention to the centers. Repeat this application once a week for several weeks in order to catch each new batch that hatches off from existing eggs.

An alternate treatment is to apply a systemic, such as Greenlight Systemic to the soil in the pot. This can be worked into the soil of each pot at about $\frac{1}{2}$ teaspoon to a three inch pot and watered in. Depending on how well the plant's root system is working, it will be picked up by the plant and distributed to its tissues in a few days. The drawback here is that it takes several days for this to become effective whereas a spray is effective immediately. A combination of spray methods and the use of a systemic is often used. Be careful not to overdose, as the

plant has been weakened and damage or death to the plant can result.

THRIPS

Thrips are slender insects which are very small but they are visible to the naked eye, especially when they are on a dark background such as a purple blossom. They are common on a large number of garden and outside plant varieties, so should be considered an everpresent threat to violets if brought inside. Thrips seem to be more prevalent during the warmer months but can become a violet pest even in cold months. Once established in a violet collection, they are persistent and hard to completely control.

While thrips like to live in the blossoms and feed on the yellow pollen sacs, they do feed on the undersides of leaves and do great damage. Their feeding can be detected early in the morning by examining the undersides of the leaves, particularly the outer leaves. There will be "trails" eaten through the first layer of the leaf. If held up to the light, the leaf will appear to be thinner in the trails, and of course actually will be. As damage progresses and the thrips reproduce in large numbers, the leaf will be entirely stripped of its lower layer and will die. The damage will progress on to the next row of leaves, and the next, until the plant is destroyed. Minor thrip damage on leaves will often heal as light brown scars. You probably will never be able to see thrips feeding on the undersides of the leaves. If you patiently pull apart several blossoms you may find one hidden down near the center. Then again you may never see the thrips themselves, only their damage. They can cause the blossoms to have whitish streaks in them or fail to open.

To treat thrips, spray with Malathion at the rate of $\frac{1}{4}$ teaspoon per quart of water once a week for several weeks. Kelthane may also be used. A light infestation may be brought under control with a repeated spraying of Raid House and Garden Spray. It is best to pull off leaves which are badly damaged, and to remove all blossoms in the case of a heavy infestation. A systemic may also be used as in the manner of mites.

MEALYBUGS

There are two types of mealybugs which infect African Violets. The Pseudococcus mealybug, or cotton mealybug is the one seen in many greenhouse and other potted plants. Unfortunately, many violets purchased from nurseries and stores have been in close contact with many other greenhouse plants and may have come in contact with the cotton mealybug. It is not difficult to control but it should not be allowed to spread for any length of time as it reproduces prolifically and can become an epidemic problem.

This mealybug will look like a little piece of cotton on a plant, on the leaves, under the leaves, on the stems, and on the bloom stems. It

... can be found anywhere on the plant. The
... higher and only to see with the naked
eye.

... can be controlled by spraying the plants with Malathion in the same rate and water as the thrips treatment. If only one plant is affected, or the infestation is very light, a cotton swab can be dipped in alcohol and touched to each mealybug and egg mass.

The other mealybug, called the Fritchard Mealybug or soil mealybug, lives on the roots of the plant, in the soil, rather than on the part of the plant above ground as the cotton mealybug does. The soil mealybug is smaller than the cotton mealy, only about 1/16 of an inch long. It is harder to see, particularly if your soil has perlite in it. The mealybugs will often look just like pieces of perlite. If the perlite has been in the soil for some time and has darkened, the soil mealybug will be much whiter than the perlite. It is a tiny oval shaped bug which feeds on the roots, lays its eggs in masses, and reproduces quickly. They will cause a plant to stop blooming, become dull and stunted, and eventually die. They are more difficult to eradicate than the cotton mealybug and require a stronger insecticide such as Cygon 2E, mixed one teaspoon to a gallon of water and drenched through the soil thoroughly once a week for several weeks. Systemic granules mixed in the soil will also help to control them. The mealybugs travel readily from pot to pot when plants are setting on a common base, so it is wise to lift all plants out of pots and check for the bugs.

BLACK FLIES

Black flies or gnats are often discovered hovering about African Violets. They are harmless, but very annoying, especially in large numbers. An aerosol spray suitable for violets such as House and Garden Raid, or a Malathion spray will control these insects.

SPRINGTAILS AND SYMPHILIDS

These two insects are very much alike, tiny and slender, and move around on the top of the soil very quickly. They are generally harmless to violets, feeding on decaying matter in the soil. The Springtail hops when disturbed with the aid of a springlike appendage on its tail. These pests may be controlled with a Malathion drench through the soil, or a dusting of chlordane on the soil surface.

ROOT NEMATODES

There are two types of nematodes which infect African Violets. The root-knot nematode is an extremely serious problem with growers and all precautions should be taken to prevent any infestation by these pests. Nematodes are present in all types of humus, peat and soils. They readily enter a plant's root system, and once they get into a root system, they

... and the plant will be killed. In the first place it is ...
... the plant above the soil. Eventually though, the plant ...
... the leaves will be killed ...
... and then of course, it will die. The nematode ...
... It is a microscopic eel-like worm, ...
... its presence causes galls, or ...
... The plant should be destroyed and any plants ...
... with it should be suspect. The nematodes travel ...
... needing only a small amount of water in which ...
... (a chlordane compound) applied to ...
... as a preventative is a worthy effort.

COLIAR NEMATODE

The Coliar nematode is one which enters the plant and travels to the leaves, where it infects the veins of the leaves. The veins will appear swollen. Triangular lesions, very bronzy, will appear on the undersides of the leaves, particularly the outer leaves. The only pesticide which seems to affect this nematode is a systemic, applied to the soil in the pot. When the plant takes up the poison and it reaches the nematodes, the damage will stop. It is wise to remove the badly damaged leaves.

DISEASES

There are a few troubles which violets have that are caused by disease or poor culture. Fungus diseases are encouraged by soil which is not porous enough, overwatering, lack of air circulation, sudden changes in temperature, etc. Terraclor, a soil fungicide will control most soil fungus diseases, as will Fermate and Phaltan. A light dusting with sulphur will take care of most fungus problems on the plants themselves.

CROWNROT

Crownrot, or the rapid deterioration of the center of the plant, may occur when a plant is set too deep in the soil and wet soil stands in or near the crown. It may also occur if water has been poured into the crown and allowed to stand. If a plant suffers from crown rot and you wish to try to save the plant, then you must remove all of that part which is affected by the rot. Take a sharp knife and cut out the crown, being sure to remove all that part of the main stem which is brown and mushy, leaving only the firm greener parts. Allow this to dry for about an hour, dust with sulphur. Avoid getting moisture near this area as much as possible. If you have successfully removed all the rotted portions and the plant survives, you will notice new crowns beginning to form. There may be more than one and you will have to select the best and keep removing all the others. It will take many months for a plant under these conditions

to return to normal, but it may be worth it if it is a favorite variety. Occasionally, if you notice crownrot just beginning, it can sometimes be stopped with a dusting of sulphur without the loss of the center.

ROOT ROT

This condition is essentially the same as crown rot except that it occurs on the roots and that part of the main stem of the plant below the soil line. If a plant begins to decline and seem dehydrated even though the soil is wet, it is very possibly a case of root rot. Remove the plant from the pot and examine its root system. Are the roots brown and dead? Work your fingers through the soil up to the main stem. Is it soft and mushy, a light reddish brown? If so, examine the main stem to see how far up the rot has progressed toward the crown. With a sharp knife, cut off the entire plant well above the rotted area. You will have a plant with a short center stem and no roots. Allow this cut to dry for an hour, dust lightly with Rootone or sulphur. In a relatively small pot (so as not to encourage overwetness of soil) place some fresh soil, hollow a hole with your finger in the center of the soil and put some vermiculite in the hole. Then place the stem of the plant in the vermiculite and press lightly around it. Keep this soil damp but never wet. The plant should grow a new root system within a month or so. A plastic bag placed over the entire plant will provide extra humidity for the plant to aid in its recovery and minimize the shock.

MILDEW

Mildew is a problem that bothers many growers especially during the colder months. It is usually in the form of a powdery white "frosting" which settles on the blooms, bloom stalks and leaf surfaces. It can spread very rapidly and do great damage to the plants if allowed to get out of hand. It is brought on by a combination of cool nights and high humidity. It is encouraged by lack of light and poor air circulation. To control it, dust with sulphur lightly. A higher more constant temperature and slightly dryer air will speed the treatment along.

BOTRYTIS

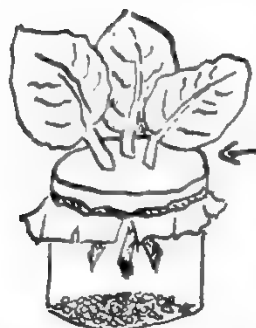
This is a fungus which occurs mostly on decaying matter, but if allowed to go unchecked it will attack the plants. It too is caused by the same conditions of high humidity, poor air circulation, etc. It usually shows up on rotting leaves and bloom stalks which are left on the plant and often fall into the soil. It grows as a white fuzzy material covering the rotting matter. If a grower practices good sanitation and grooming, he should never be bothered with this rot. It responds to a dusting of sulphur, or other fungicide.

PETIOLE ROT

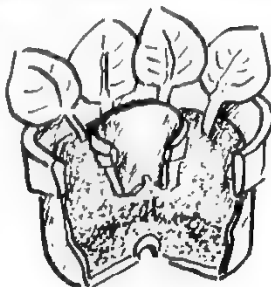
This is a condition which occurs when a petiole (leaf stalk) comes in

There is no single right way to put down a leaf for rooting, as there are many good methods. To begin, select a leaf from a mature plant but not a leaf which is yellowing or obviously aging. Snap it off the plant so that it comes off at the main stem. Be sure that no partial stem remains on the plant, as this will encourage root and fungus diseases. With a sharp razor blade, cut the stem at a slant about one inch to one and one half inches from the leaf. Too long a stem does not seem to encourage the best propagation, and the long stems are hard to work with in the rooting trays. It is just as possible of course to get plants from a full length stem, or a very short stem, or a leaf with no stem at all.

Leaf Propagation Methods

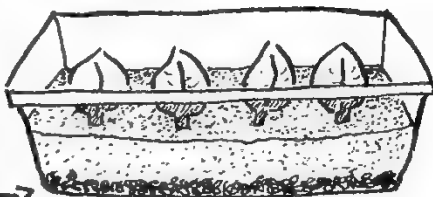


Leaves rooting in water to which a little fine charcoal has been added to keep the water sweet



community pot of leaves in neutral mix
Small pot in center for watering

Leaves rooting in a neutral mix. A 1/2 inch layer of sponge rock on bottom for drainage.



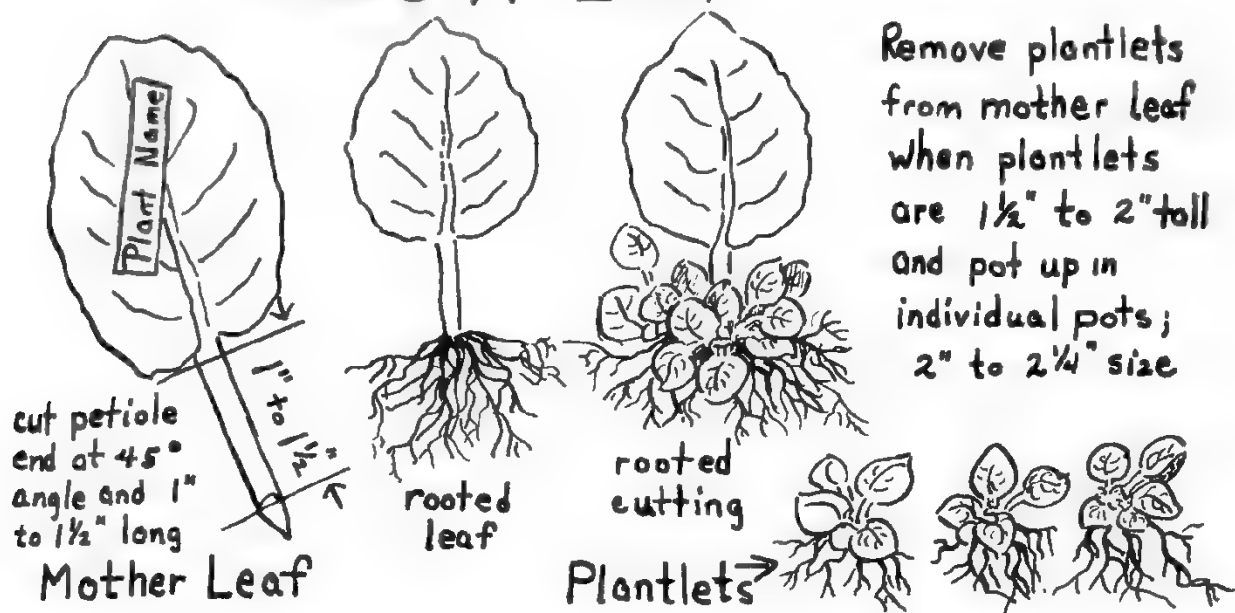
Leaf in 2 1/4" individual pot in a neutral soil mix.

Next prepare a suitable rooting container. Some growers put leaves in individual two inch pots and set them in a tray which has vermiculite in it. Others root leaves in community trays using whatever containers they have handy. The foil containers which come from the freezer sections of grocery stores, especially those on frozen cheesecakes, pies, etc., make excellent rooting trays. It does not have to be too deep. Plastic shoe boxes are excellent trays. Your rooting medium can be vermiculite, just plain, or vermiculite mixed with perlite, etc. An excellent neutral soil mix called a "starter mix" is four measures vermiculite, one measure perlite, and one half measure charcoal. Put this about two inches deep or so, but not more than three inches, in your tray, then with a pencil or your finger, make a hole in the mix and put the leaf stem down in the hole an inch or so at a slant with the leaf facing up. Gently press the mixture down around the stem. Water with tepid water, keeping them moist but not too wet. Do not allow the tray to dry out or the valuable new roots will die. It is most advisable to label each leaf in some manner with its

... you are not wondering what variety ...
 ... are in ... and labeled with a marking ...
 ... the ink in the pen ...
 ... wash off when you spray or water your ...

The time it takes for plants to appear depends greatly on the variety, the health of the particular leaf, and the growing conditions. Roots should form on the leaf in ten days or so. Plantlets may begin to appear as early as six weeks or as long as four months later. Plantlets seem to form more quickly in warm weather rather than the winter months. The leaves can begin receiving a dilute mixture of fertilizer when roots form or approximately two weeks after putting down. You can tell when roots are formed by giving a GENTLE tug on the leaf, but not enough to dislodge the leaf.

Take A Leaf and



The little plantlets can be potted up when the leaves are about the size of a nickel. Very carefully remove the rooted cutting (the mother leaf with its baby plants) and with the fingers gently separate the baby plantlets. Those which have good root systems can be put into regular soil. Those which have few or no roots after separating can be set back into the rooting mix for a few weeks to form their own root systems. Do not overwater newly potted plantlets, but keep them damp.

STARTING LEAVES IN WATER

Leaves can be rooted easily by suspending them, either with a shortened stem or a long stem, in a jar of water. (See illustrations). Roots seem to appear very quickly this way, although some growers don't like this

method because when the leaves are transferred to a starter mix (this should be done as soon as tiny plantlets begin to appear) many of the tiny roots die off and sets the leaf back somewhat. The stems should not rest on the bottom of the rooting jar as this tends to encourage rot. When the tiny plantlets begin to appear at the base of the stalk just above the roots, the leaves should be carefully potted in the starter mix and the roots spread out and covered. Then the procedure goes on as above.

ROOTING SUCKERS

Violets tend to form suckers, or extra crowns and these can be removed with the point of a sharp knife, a crochet hook, or any number of gadgets. Allow the wound to dry a bit. Then set the sucker into the same starter mix as leaves use, being careful not to bury the center or crown. New roots should form very quickly and in a matter of a few weeks the plant should be ready to pot into a regular soil mix. This is an ideal way to add plants to the collection and have them reach blooming size in a much shorter length of time than through leaf cuttings.

SEEDS

The propagating of violets from seeds is the most tedious and requires the greatest time lapse of all the methods. Seed can be bought from some seed houses, though the varieties are somewhat limited. Most growers who do propagate from seed have made their own crosses. That is, they have selected a mother plant and a pollen plant, and have cross pollinated, or hand fertilized the mother plant so that a seed pod will hopefully form. To do this the pollen is taken from the yellow pollen sacs in the bloom, (it is ready when it is not sticky) and placed on the stigma of the bloom of the mother plant (this is ready when it is slightly expanded on the end and a bit sticky). This transfer can be done with the fingernail, a toothpick, etc. IF the pollen is ready and the stigma is receptive, a seed pod will form. It will take three to nine months for the seed pod to ripen. The seed pod will turn brown and dry and the stem will dry up.



A seed tray can be prepared using a plastic shoe box. Put in an inch perlite, then about two inches of the starter mix, then a very thin uttering of fine milled sphagnum moss on top. Dampen thoroughly by ring water in one corner and letting it set overnight to dampen the

entire contents. Then scatter seed over moss, do not cover seed and never water on top of them as they are so tiny that they will be injured. Keep a clear cover over them so that humidity is kept high. If water condenses on sides, remove lid temporarily. New seedlings should begin to appear in about three weeks, or so.

WHAT SIZE PLANT DO I BUY?

A dilemma which most new growers face is knowing how to select a plant by its appearance and what points to look for in doing so. Another decision involves whether to buy a small young plant or an older blooming one. This would depend upon your purpose in buying the plant somewhat. The mature blooming violet is one of the most beautiful impressive gifts among the plant world. Many growers buy a plant somewhat smaller but still in bud or bloom because they don't want to wait for the plant to grow to blooming stage. Still others buy only the very young plants so that they can adapt them to their own growing environment early and give it the type of culture they feel it should have. Most larger growers buy the very small plants, for this reason and also for economic reasons. That is, larger growers are constantly adding to their collections with new varieties which reach the market each year, so they must make their financial outlays carefully.

TRAVELING WITH PLANTS

It is inevitable that anyone who grows violets will eventually end up transporting some to some other place, whether it is across the country to a new home, across town to a friend or to a show. Growers have devised many methods and tips over the years out of necessity. Plants which are nested down into shredded newspapers in a cardboard box seem to travel very well.

Nearly all growers from time to time employ the easy and convenient "newspaper collar" to support each individual plant. A sheet of newspaper is opened out; then gently wadding as you go, roll the newspaper into a loose roll, bring the ends together and give them a twist to hold them together. There you have a paper "donut". The pot is set down into the hole of the donut with the plant's foliage supported all around it. Then the plant, in its newspaper donut can be set in a box for stability, or several packed into the same box. If the plants are going to be subjected to strong sunlight during the transporting, it is wise to cover the top of the box lightly with newspaper.

During very cold weather, the plants should be insulated from the cold by lining their container with several thicknesses of paper. If they are to be in the cold for any length of time, a quart fruit juice bottle or canning jar filled with hot water can be placed in the box with them to provide a little warmth. Be sure no plants are directly in contact with the hot jar. A styrofoam ice chest is a good insulator against heat or

cold.

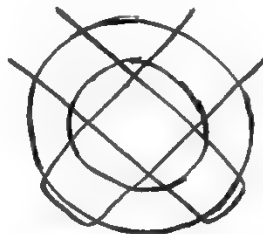
LEAF SUPPORTS

Occasionally a very large plant will benefit by some sort of support under its heavy leaves. Growers who are grooming their plants to show in a violet show often use plant supports to help with the training and arranging of the leaf pattern, or symmetry. These can be devised any number of ways often using something you may have around the house for materials. One popular type of support is a circle of styrofoam (the size of the circle depending on the size of plant for which the circle is intended) with two wires placed parallel and separated by about two inches, across the diameter of the circle. The wires can be spread apart to allow the pot to go through, then the wires brought together again and resting on the pot's top edges so that the styrofoam circle comes up under the leaves.

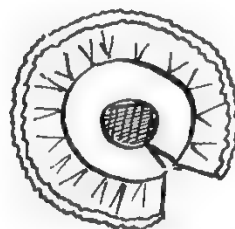
Leaf Supports



small plastic tubing taped in a circle. Coat hanger cut, bent and taped to tube.



Styrofoam round, with floral wire



Aluminum pie pan with hole cut out in center and pan resting on top of pot

Other variations include the use of aquarium air tubing, cut into lengths and fastened in a circle, with a "V" of wire taped to one side of the circle with ends protruding past the opposite side of the circle to support the circle. The same principal of attachment is applied. Still other versions involve the use of doweling, split bamboo, cardboard, wires, aluminum pie pans, etc. The possibilities are endless. Incidentally, plants being exhibited in shows must have all plant supports removed so that the plant may be judged on its own merits.

MINIATURES AND SEMIMIATURES

Miniatures, or windowsill violets are coming into their own now as some of the most popular violets of all. These are not just stunted versions of large plants, but varieties hybridized to be miniature. The true miniature should not exceed a measurement of six inches across the top of

the plant. The semiminiature should reach no more than eight inches. It happens that sometimes our miniatures will grow larger than these specifications, but generally they are fairly steady. A miniature should never be grown in anything larger than $2\frac{1}{2}$ inch pot, nor a semiminiature in anything larger than three inches. This will help keep the size down.

The basic culture for miniatures is the same as for the standard size violets, although growers often profess to have secrets and hints in growing them. It is important not to let these little ones dry out and they do have a tendency to do this since they are in small pots. Many growers say that wicking seems to be the answer for their miniatures. Grooming is very important, especially since miniatures do have a tendency to sucker. Miniatures should be repotted about two or three times a year. Change the soil and do any grooming necessary, but do not put them in a larger pot. Put them in a clean pot of the same size.

AFRICAN VIOLET SHOWS

The purpose of holding an African Violet show is multi-fold. First an African Violet show is a beautiful sight, and it gives growers a chance to display their plants and their accomplishments in the culture of violets. Second, a violet show is an inspiration to the grower who needs a little stimulation in working with his own plants. The matter of healthy competition, with awards offered, is a stimulant to the already accomplished grower to perfect his technique just a little more. Not in the least, is the purpose of bringing African Violets to the attention of the public, hopefully inspiring others to begin growing violets and join the thousands upon thousands who cultivate violets as a hobby. Violet shows are an educational vehicle, to teach the art of violet growing and to disseminate the latest in developments from the world of violet research and horticulture.

African Violet shows are fun....fun for those who attend them, and fun for those who hold them. But they are a tremendous amount of work, and a good part of the year is spent by the African Violet society in planning a show, obtaining financing and assembling the properties, all integral items in the success of a violet show. A person considering joining a violet society will be pleasantly surprised by the amount of educational enrichment he will receive as well as valuable fellowship. He should also be prepared to accept and perform willingly his share of the work load involved in maintaining and furthering the society.

HOW PLANTS ARE JUDGED IN A SHOW

The African Violet Society of America, Inc. has devised a scale of points for judging African Violet show plants, which more or less has been universally accepted as standard. African Violet Show Judges are taught by the A.V.S.A. and must meet certain requirements before receiving their credentials from the A.V.S.A. Judges must periodically return to judging

school and maintain certain standards in order to retain their credentials. They are all taught to judge plants by this scale of points. If a violet show visitor understands this procedure, his visit should be all the more interesting, as he will understand why one plant received a higher award than another.

There are five qualities in a plant which are judged on this scale. Given below is the scale or points showing the maximum number of points a plant can receive on each quality. with a perfect score adding up to 100. A bit of explanation has been included under each quality listing.

Leaf pattern or form	30
(this means how well the leaves are growing in a wheel-like symmetrical pattern, without gaps)	
Floriferousness.....	25
(how many blooms according to that variety)	
Condition	20
(how well it has been grown and groomed)	
Size of bloom	15
(how large blooms are for that variety)	
Color.....	10
(how good the color of bloom is for that variety)	

Each plant is judged on its own merit, not against each other, in most violet shows. This is called merit judging. Judges are required to be familiar with varieties so that they know what each variety can be expected to do. Some general flower shows are judged competitively. This means that plants are judged against each other, and the only plants receiving awards are the best, second best, and third.

A blue ribbon is awarded if a plant scores between 90 and 100 points. A red ribbon is awarded if a plant scores 80 - 89, and a white ribbon is awarded if a plant scores 70 to 79 points on the scale above.

RELATIVES OF AFRICAN VIOLETS

From time to time at shows the visitor will notice an assortment of other blooming and non-blooming plants, potted and in hanging baskets. These will be the Gesneriads, relatives of the African Violet. There are countless varieties and types of these, and we will only mention them here. They require essentially the same culture as the African Violet with some modifications.

They fall into three main groups; the fibrous rooted, the scaly rhizomes, and the tuberous. The fibrous rooted include the Columneas, Episcias, and Streptocarpus. These grow well in hanging baskets, and include both trailer types and spreading types. Many are grown for their

beautiful foliage alone. The scaly rhizomes include such plants as Achimenes, Kohleria, and Seemannia. The tuberous include the showy Gloxinia.

There are many excellent references available on the culture of Gesneriads. The Gesnerial Saintpaulia News (better known as "the GSN" is a beautiful publication which comes out bi-monthly and is available by subscription from the Indoor Gardener Publishing Co., 1800-1802 Grand Avenue, Knoxville, Tennessee, 37901.

DEFINITIONS OF TERMS USED IN THIS HANDBOOK

BLOOMSTALK: a spray of blossoms which is on a stem that is growing between the leaves of a plant.

BUD: an unopened or partly opened blossom.

CROWN: center of plant formed by a rosette of leaves from which new growth appears.

CUTTING: a cutting is a rooted leaf with baby plants growing on it.

DISBUD: to remove all bud stalks to make remaining development fuller or to delay blossoming.

FANTASY BLOSSOM: a single or double blossom that is splotched, streaked or rayed with a contrasting color or with a darker shade of the same color.

FOLIAGE: the leaf of a plant.

FOLIAR: having to do with the foliage of a plant.

GENEVA BLOSSOM: those blossoms which are edged in white.

HYBRID: the offspring grown from seed as a result of breeding or cross pollinating different varieties or species.

MINIATURE: plants which may be up to 6" across at maturity. Foliage is small but blossoms can be any size. Average 6-12 blossoms per plant.

MULTICOLORED BLOSSOM: a blossom with two or more colors.

MULTIPLE CROWN: two or more resettes of leaves emerging from center of plant.

NECK: main stem of plant.

OVATE: as in foliage, egg shaped in outline with the broader end at the base.

PETIOLE: the stalk or stem of a leaf.

PISTIL: the seed bearing organ of a flower, consisting of the ovary, the style and the stigma or stigmas.

PLANT STALK: main stem of plant.

POLLEN: the yellow sperm bearing grains released from the anthers.

PROPAGATE: the process of reproduction.

RUFFLED FOLIAGE: wavey edges - whole leaf may ripple.

SEEDLING: a plant grown from the seed of an original plant.

SERRATE: notched or toothed on edge of leaf like a saw.

SPECIES: a classificatory group of plants subordinate to a genus, having members that differ only slightly in minor details of proportion and color and are capable of fertile inbreeding. In plant names, the first word indicates the genus, the second the species, and the third the variety; for example, St Paulia-Ionatha-Blue Boy.

SPORT OR MUTANT: these are plants which are different from the parent plant in some characteristics such as in the blossom or the leaf, etc.

STAMEN: the male reproduction organ of a flower comprised of a stalk and the anther producing and containing pollen. For the Saint Paulia there are two stamens, each having a two-lobed anther with the two anthers touching.

STIGMA: the upper part of the pistil that receives the pollen grains and stimulates them to travel as pollen tubes to the ovary to fertilize the egg cells.

STYLE: a connective between the stigma and the ovary or ovaries of the plant.

SUPREME: characterized by very hairy large thick leaves. Blossoms are huge but fewer than standard varieties.

TAILORED FOLIAGE: plain flat leaves.

TWO TONE OR BICOLOR: blossoms having light and dark values of the same color.



HAPPY VIOLET GROWING